

**Amendments to the Claims:**

This listing of claims will replace all prior versions of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method for providing custom probe arrays of biological molecules, comprising the acts of:

receiving a first selection from a first user of one or more probe set identifiers that identify a first set of probe sets, each probe set comprising one or more probes, ~~and a second selection from the first user to share available space on a custom probe array design with one or more additional users;~~

identifying a second set of one or more probe sets selected by ~~the~~ one or more additional users;

generating ~~the~~ a shared, custom probe array design comprising the first and second sets of probe sets, wherein the first and second sets of probe sets together comprise a number of probe sets that is less than or equal to a total number of probe sets available for the custom probe array design;

providing a representation of the custom probe array design to the first user via one or more graphical user interfaces, wherein the one or more graphical user interfaces are enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design; and

providing to the first user one or more probe arrays produced using the custom probe array design, ~~and responsive to the user specification of acceptance or modification, wherein at least one probe detects nucleic acids.~~

2. (Previously Presented) The method of claim 1, wherein:

one or more of the probe arrays is capable of diagnosing a disease and/or medical condition.

3. (Cancelled)

4. (Previously Presented) The method of claim 1, wherein:

the one or more probes are capable of hybridizing with biological molecules.

5. (Currently Amended) A method for providing custom probe arrays, comprising:

receiving a first selection from a first user of one or more probe set identifiers that identify a first set of probe sets, each probe set comprising one or more probes, ~~and a second selection from the first user to share available space on a custom probe array design with one or more additional users;~~

identifying a second set of one or more probe sets selected by ~~the~~ one or more additional users;

generating ~~the~~ a shared, custom probe array design comprising the first and second sets of probe sets, wherein the first and second sets of probe sets together comprise a number of probe sets that is less than or equal to a total number of probe sets available for the custom probe array design;

providing a representation of the custom probe array design to the first user via one or more graphical user interfaces, wherein the one or more graphical user interfaces

are capable of receiving a third selection from the first user specifying acceptance, modification, or rejection of the custom probe array design; and  
providing to the first user one or more probe arrays produced using the custom probe array design ~~and responsive to the user specification of acceptance or modification.~~

6. (Previously Presented) The method of claim 5, wherein:

the first, ~~and second, and third user selections~~ probe sets are received over the Internet.

7. (Original) The method of claim 5, wherein:

the probe set identifiers comprise sequence information.

8. (Previously Presented) The method of claim 5, wherein:

the probe set identifiers are selected by the first user from a predetermined list.

9. (Previously Presented) The method of claim 8, wherein:

each item on the list corresponds to a gene.

10. (Cancelled)

11. (Previously Presented) The method of claim 5, wherein:

the custom probe array design is generated using one or more probe array format factors.

12. (Previously Presented) The method of claim 11, wherein:

some or all of the probe array format factors are provided by the first user and the act of receiving includes receiving a fourth selection of the probe array format factors from the first user.

13. (Previously Presented) The method of claim 11, wherein:

the probe array format factors include one or more indicators of geographic dispersion of probe sets on the probe array.

14. (Previously Presented) The method of claim 5, wherein:

the one or more probe arrays comprise substrate material selected from the group consisting of glass, silica, optical fibers, beads, resins, gels, or microspheres.

15. (Previously Presented) The method of claim 11, wherein:

the act of generating further includes modifying or rejecting one or more user-selected probe array format factors.

16. (Original) The method of claim 5, further comprising the act of:

the graphical user interface is provided over a network.

17. - 18. (Cancelled)

19. (Currently Amended) A system for providing custom probe arrays, comprising:

an input manager that receives a first selection from a first user of one or more probe set identifiers that identify a first set of probe sets each probe set comprising one or more probes, ~~and a second selection from the first user to share available space on a custom probe array design with one or more additional users;~~

a probe array generator that identifies a second set of one or more probe sets selected by the one or more additional users and generates ~~the~~ a shared custom probe array design comprising the first and second sets of probe sets, wherein the first and second sets of probe sets together comprise a number of probe sets that is less than or equal to a total number of probe sets available for the custom probe array design; and

a user data processor that provides a representation of the custom probe array design to the first user via one or more graphical user interfaces, wherein the one or more graphical user interfaces are capable of receiving a user selection specifying acceptance, modification, or rejection of the custom probe array design, and one or more probe arrays are provided to the first user in response to a user selection specifying acceptance or modification of the custom probe array design.

20. (Currently Amended) The system of claim 19, wherein:

the first, and second ~~and third user selections~~ probe sets are received over the Internet.

21. (Original) The system of claim 19, wherein:

the probe set identifiers comprise sequence information.

22. (Previously Presented) The system of claim 19, wherein:  
the probe set identifiers are selected by the first user from a predetermined list.
23. (Previously Presented) The system of claim 22, wherein:  
each item on the list corresponds to a gene.
24. (Cancelled)
25. (Previously Presented) The system of claim 19, wherein:  
the probe array generator further generates the custom probe array design using  
one or more probe array format factors
26. (Previously Presented) The system of claim 25, wherein:  
the input manager further receives some or all of the probe array format factors  
from the first user, including one or more user-selected probe array format factors.
27. (Previously Presented) The system of claim 25, wherein:  
the one or more probe array format factors include one or more indicators of  
geographic dispersion of probe sets on the probe array.
28. (Previously Presented) The system of claim 27, wherein:

the one or more probe arrays comprise substrate material selected from the group consisting of glass, silica, optical fibers, beads, resins, gels, or microspheres.

29. (Previously Presented) The system of claim 27, wherein:

the probe array generator further modifies or rejects the one or more user-selected probe array format factors.

30. (Original) The system of claim 19, wherein:

the graphical user interface is provided over a network.

31. - 32. (Cancelled)

33. (Currently Amended) A genomic portal system for providing custom probe arrays, comprising:

an application server comprising an input manager that receives a first selection from a first user of one or more probe set identifiers that identify a first set of probe sets, each probe set comprising one or more probes ~~and a second selection from the first user to share available space on a custom probe array design with one or more additional users,~~ a probe array generator that identifies a second set of one or more probe sets selected by ~~the~~ one or more additional users and generates ~~the~~ a shared custom probe array design comprising the first and second sets of probe sets, wherein the first and second sets of probe sets together comprise a number of probe sets that is less than or equal to a total number of probe sets available for the custom probe array design, and a

user data processor that provides a representation to the first user of the custom probe array design via one or more graphical user interfaces, wherein the one or more graphical user interfaces are capable of receiving a user selection specifying acceptance, modification, or rejection of the custom probe array design, and one or more probe arrays are provided to the first user in response to a user selection specifying acceptance or modification of the custom probe array design; and

a network server comprising an output manager that provides to the first user one or more probe arrays produced using the custom probe array design.

34. (Previously Presented) The system of claim 33, wherein:

the network server further comprises an input manager that receives the first selection; and

the system further comprises one or more user computers that accepts the first selection of one or more probe set identifiers from the first user and provides the first selection to the network server.

35. (Previously Presented) The system of claim 33, wherein:

the user data processor provides the custom probe array design to the first user via the internet.

36.-83. (Cancelled)

84. (Currently Amended) A method for providing custom probe arrays, comprising the acts of:

receiving a first selection from a first user of one or more probe set identifiers that each identify a first set of probe sets each probe set comprising one or more probes ~~and a second selection from the first user to share available space on a custom probe array design with one or more additional users;~~

identifying a second set of one or more probe sets selected by ~~the~~ one or more additional users;

generating ~~the~~ a shared custom probe array design comprising the first and second sets of probe sets, wherein the first and second sets of probe sets together comprise a number of probe sets that is less than or equal to a total number of probe sets available for the custom probe array design; and

providing to the first user one or more probe arrays produced using the custom probe array design.

85. (New) A method for providing custom probe arrays, comprising:

receiving, from a first user, probe set identifiers to place a first probe set on an array;

receiving, from a second user, probe set identifiers to place a second probe set on the array; and

producing a probe array having the first and second probe sets on the array.

86. (New) A method in accordance with claim 85 wherein the second probe set is selected after review of the first probe set by the second user.

87. (New) A method in accordance with claim 85 wherein the probe set identifiers are received over the Internet.

88. (New) A method in accordance with claim 85 wherein the array comprises nucleic acid probes.